



CURE CHEM INDIA

The Chemical People

A-85, 1ST FLOOR, MASOODPUR MAIN ROAD, VASANT KUNJ, NEW DELHI-110070 (INDIA)
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MATERIAL SAFETY DATA SHEET METRIBUZIN 480 G/L SC

SECTION 1 - PRODUCT & COMPANY IDENTIFICATION

Substance: Metribuzin.

Product Name: METRIBUZIN 480 g/l SC

Product Use: Herbicide

Manufacturer: CURE CHEM INDIA

Address: A-85, 1ST FLOOR, MASOODPUR MAIN ROAD, VASANT KUNJ, NEW DELHI-110070 (INDIA)

Telephone: +91-11-26898689/26139884

SECTION 2 - COMPOSITION / INFORMATION ON INGREDIENTS

Common Name: Metribuzin

Chemical Name: 4-amino-6-*tert*-butyl-4, 5-dihydro-3-methylthio-1,2,4-triazin-5-one; 4-amino-6-*tert*-butyl-3-methylthio-1,2,4-triazin-5(4*H*)-one (IUPAC)

CAS No.: 21087-64-9

Chemical family: Triazinone

Chemical formula: C₈H₁₄N₄O₂S

Molecular weight: 214.3

Use: Pre- and post-emergence control of many grasses and broad-leaved weeds. Its mode of action is: Photosynthetic electron transport inhibitor at the photosystem II receptor site.

Selectivity is due to metabolism (mostly conjugation) within the plant. Selective systemic herbicide, absorbed predominantly by the roots, but also by the leaves, with translocation acropetally in the xylem.

Formulation: metribuzin: 480 g/l

Soluble Concentrate

Hazardous ingredients of toxicological concern:

| Inert | concern | % present |
|------------|-------------------------------|-----------|
| metribuzin | harmful, environmental hazard | 40 - 50 % |
| solvents | harmful | < 5 % |

Symbols: Xn, N

Risk-phrase(s): R22, R36/37/38, R40, R43, R44, R50/53

SECTION 3 - HAZARD IDENTIFICATION



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Likely routes of exposure: Skin contact, ingestion and inhalation.

Skin: May cause mild irritation and mild sensitization to some individuals.

Eye contact: Mild to moderate eye irritant.

Ingestion: Minimally toxic. Harmful if swallowed.

Inhalation: Minimally toxic. Harmful if inhaled.

SECTION 4 - FIRST AID MEASURES AND PRECAUTIONS

Inhalation:

Remove source of contamination, or move victim to fresh air. Affected person must be kept warm and at rest. Treat symptomatically and supportively. If breathing is difficult, a qualified person should administer oxygen. Get medical attention immediately if effects persist.

Skin contact:

Move the victim to fresh air and remove all contaminated clothing, shoes and leather goods. Gently wipe off excess chemical. Wash affected skin areas gently and thoroughly with cold water and non-abrasive soap. Do not rub the skin. If irritation persists, obtain medical attention.

Eye contact:

Immediately flush the eyes with clean, gently flowing cold water for 20 minutes, holding the eyelid(s) open. If irritation persists, obtain medical attention.

Ingestion:

Have victim rinse mouth thoroughly with water. Do not induce vomiting. Seek medical advice immediately, showing container and label.

Advice to physician:

There is no specific antidote. Treat symptomatically and supportively as and when required. Gastric lavage could be considered. Give oxygen if respiration is depressed.

SECTION 5 - FIRE-FIGHTING MEASURES

Fire and explosion hazard:

Flash point: None – water based.

This material is not flammable.

Extinguishing agents:

Extinguish fires with carbon dioxide, dry powder, or alcohol-resistant foam. Water spray can be used for cooling of unaffected stock, but avoid water coming in contact with the product. Use as little water as possible. Use spray or fog. Solid stream may cause spreading. Contain water used for fire fighting for later disposal.

Hazardous products of combustion:

In a fire, carbon oxides (CO, CO₂), nitrogen oxides (NO_x) and sulfur oxides (SO_x) may be formed.

Fire fighting:

Remove spectators from surrounding area. Remove container from fire area if possible.

Contain fire control agents for later disposal. Use a recommended extinguishing agent for the



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type of surrounding fire. Avoid inhaling hazardous vapours and fumes from burning materials. Keep upwind.

Personal protective equipment:

Fire may produce irritating or poisonous vapours (toxic fumes of carbon oxides, nitrogen oxides and sulfur oxides), mists or other products of combustion. Fire fighters and others that may be exposed should wear full protective clothing and self-contained breathing apparatus.

SECTION 6 - ACCIDENTAL RELEASE MEASURES (SPILLAGE)

Personal precautions:

Avoid contact with skin and eyes. Do not breathe in spray or fumes. For personal protection see Section 8.

Environmental precautions:

Do not allow entering drains or watercourses. Uncontrolled discharges, spillage of Metribuzin or into water courses (or public waters) to be reported immediately to the Environmental Management Agency (EMA).

Occupational spill:

Do not touch spilled material; stop leak if you can do it without risk. Keep out unprotected persons and animals.

For small liquid spills, soak up with damp earth or sand, or other non-combustible absorbent material. Place the material into a clean, dry container and cover for subsequent disposal.

For large liquid spills, contain the liquid by damming in with absorptive material and pump into containers. Soak up remainder with absorbent material.

Label containers with its content and dispose it in accordance with local regulations. Open burning or dumping of this material is prohibited. Do not flush spilled material into drains.

Keep spectators away. In situations where product comes in contact with water, contain contaminated water for disposal.

SECTION 7 - HANDLING AND STORAGE REQUIREMENTS

Handling:

Avoid contact with eyes, prolonged contact with skin, and inhalation of spray and fumes.

Handle product with caution. Use with adequate ventilation. Wash hands before eating, drinking, chewing gum, smoking or using the toilet. Remove clothing immediately if the herbicide gets inside. Then wash skin thoroughly using a non-abrasive soap and put on clean clothing. Operators should change and wash clothing after use. Do not apply directly to areas where surface water is present, or to intertidal areas below the mean high water mark. Water used to clean equipment must be disposed of correctly to avoid contamination.

Storage:

Product must be kept in its original, labelled and closed container in dry, cool, shaded, well-ventilated area, away from heat, sparks and other sources of ignition. Do not store with other pesticides, fertilizer, seeds, foodstuffs and water supplies. Keep away from incompatible substances. Product is incompatible with galvanized steel or unlined mild steel. Keep out of



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reach of unauthorized persons, children and animals. Local regulations should be complied with.

SECTION 8 - EXPOSURE CONTROL/PERSONAL PROTECTION

It is essential to provide adequate ventilation. The measures appropriate for a particular work site depend on how this material is used and on the extent of exposure. Ensure that control systems are properly designed and maintained. Comply with occupational safety, environmental, fire and other applicable regulations.

PERSONAL PROTECTIVE EQUIPMENT:

If engineering controls and work practices are not effective in controlling exposure to this material, then wear suitable personal protective equipment including approved respiratory protection.

Respirator:

It is usually safe to use the product without a mask or respirator. If the product is used in dusty or confined conditions, a mask or respirator suitable for protection from dusts and mists of pesticides is adequate. Limitations of respirator use specified by the approving agency and the manufacturer must be observed.

Clothing:

Employee must wear appropriate protective (impervious) clothing and equipment to prevent repeated or prolonged skin contact with this substance.

Gloves:

Employee must wear appropriate synthetic protective gloves to prevent contact with this substance.

Eye protection:

Wear safety goggles or face shield.

Emergency eye wash: Where there is any possibility that an employee's eyes may be exposed to this substance; the employer should provide an eye wash fountain or appropriate alternative within the immediate work area for emergency use.

SECTION 9 - PHYSICAL AND CHEMICAL PROPERTIES

Appearance: Beige free flowing homogenous liquid.

Odour: Musty odour.

Relative density: 1.145 ± 0.05 g/cm³ at 20 OC.

Solubility in water: Soluble.

Flash point: None, Water based and does not flash.

pH: 6,8

Oxidising properties: product is none oxidising.

Viscosity: Dynamic: 790 cP

SECTION 10 - STABILITY AND REACTIVITY

Stability: Stable under normal temperatures and storage conditions.

Storage stability:



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Metribuzin is stable for 2 years under normal warehouse conditions. Keep product at temperatures below 50⁰C and above 0⁰C.

Incompatibility:

Product is normally compatible with diuron, ametryn and paraquat provided the mixing instructions are strictly adhered to. The quality of the water however, can affect the compatibility. Therefore, a compatibility test should be carried out with the water and the products to be used prior to mixing. Do not physically mix concentrate directly with other herbicides or pesticide concentrates; always dilute first. Avoid strong alkalis.

Thermal decomposition:

Toxic oxides of carbon, nitrogen and sulfur are released when the product decomposes on heating.

SECTION 11 - TOXICOLOGICAL INFORMATION

Acute oral LD50: 2000 mg/kg in rats.

Acute dermal LD50: 20 000 mg/kg in rats.

Inhalation: Technical: LC50 (4 hours): > 0,65 mg/ℓ air.

Acute skin irritation: may cause mild skin irritation.

Acute eye irritation: mild to moderate eye irritant.

Skin sensitization: may cause mild sensitization.

Reproductivity: Metribuzin does not cause reproductive effects.

Teratogenicity:

Data suggest that metribuzin is unlikely to cause teratogenic effects in humans under normal circumstances.

Mutagenicity:

Tests on live animals and on tissue cultures have shown that metribuzin has no mutagenic activity.

Carcinogenicity:

There were no indications of carcinogenic effects in rats receiving dietary doses of up to 15 mg/kg/day for 2 years, nor in mice fed up to about 380 mg/kg/day for 2 years. These data suggest that metribuzin is not carcinogenic.

Organ toxicity:

In single high dose studies, metribuzin appears to depress the central nervous system. Other studies indicate that the target organs of metribuzin are the thyroid gland and the liver.

ADI: 0,013 mg/kg body weight.

SECTION 12 - ECOLOGICAL INFORMATION

Degradability:

Metribuzin is of moderate persistence in the soil environment. The half-life varies according to soil type and climatic conditions. Soil half-lives of 30 to 120 days have been reported; a representative value may be approximately 60 days. Metribuzin is poorly bound to most soils and soluble in water, giving it a potential for leaching in many soil types. The major



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mechanism by which metribuzin is lost from soil is microbial degradation. Losses due to volatilization or photo-degradation are not significant under field conditions.

The half-life of metribuzin in pond water is approximately 7 days. If present, metribuzin would most likely be found in the water column rather than the sediment, due to its low binding affinity and high water solubility.

ECOTOXICOLOGY:

Birds: Slightly toxic to moderately toxic.

LC50: Mallard duck: 460 - 680 mg/kg

Bobwhite quail: 164 mg/kg

Metribuzin 480 g/l SC is moderately to very toxic to aquatic organisms.

Fish:

LC50 (96 hours): Rainbow trout: 74.6 mg/l

Sheepshead minnows: 85 mg/l

Golden orfe: 141.6 mg/l

Algae: ErC50: *Scenedesmus subspicatus* 0.021 mg/l

Daphnia: LC50 (48 hours): 4.5 – 49.6 mg/l

Bees: Not toxic. LD50: 35 µg/bee

Earthworms:

LC50 (14 days): *Eisenia foetida*: 331.8 mg/kg dry soil

SECTION 13 - DISPOSAL CONSIDERATION

Pesticide disposal:

Open dumping or burning of this pesticide is prohibited. Waste resulting from the use of this product that cannot be reused or reprocessed. Never pour untreated waste or surplus products into public sewers or where there is any danger of run-off or seepage into water systems. Do not contaminate rivers, dams or any other water sources with the product or used containers. Comply with local legislation applying to waste disposal.

Container disposal:

Emptied containers retain vapour and product residues. Observe all labelled safeguards until container is destroyed.

TRIPLE RINSE empty containers in the following manner: Invert the empty container over the spray or mixing tank and allow to drain for at least 30 seconds after the flow has slowed down to a drip. Thereafter rinse the container three times with a volume of water equal to a minimum of 10 % of that of the container. Add the rinsings to the contents of the spray tank before destroying the container in the prescribed manner.

Do not re-use the empty container for any other purpose but destroy it by perforation and flattening and bury in an approved dump site. Prevent contamination of food, feedstuffs, drinking water and eating utensils.

Comply with local legislation applying to waste disposal.

SECTION 14 - TRANSPORT INFORMATION



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UN NUMBER: 3082

Road Transport ADR/IRD:

Class: 9

Packing group: III

Shipping name: Environmentally hazardous substance, Liquid, N.O.S. (herbicide – Metribuzin 480 g/l)

Maritime Transport IMDG/IMO:

Class: 9

Packing group: III

Shipping name: Environmentally hazardous substance, Liquid, N.O.S. (herbicide – Metribuzin 480 g/l)

SECTION 15 - REGULATORY INFORMATION

Symbol: N, Xn

Indication: Environmentally dangerous substance, Harmful.

Risk phrases:

R 20/22: Harmful by inhalation and if swallowed.

R 36: Irritating to eyes.

R 50/53: Very toxic to aquatic organisms may cause long-term adverse effects in the aquatic environment.

Safety phrases:

S 2: Keep out of reach children.

S 24/25: Avoid contact with skin and eyes.

S 37/39: Wear gloves and eye/face protection.

S 60: This material and its container must be disposed of as hazardous waste.

S 61: Avoid release to the environment. Refer to special instructions/safety data sheets.

SECTION 16 - OTHER INFORMATION

Packaging:

Packed in 1, 5, 10, & 20 litres plastic containers and labelled according to Zimbabwe Pesticide regulations, 2012 (Statutory Instrument 144 of 2012) and guidelines.

Disclaimer:

This msds summarizes to our best knowledge of the health and safety hazard information of the product and how to safely handle and use the product in the workplace or area of intended use. Each user must review this msds in the context of how the product will be handled and used in the workplace. If clarification or further information is needed to ensure that an appropriate risk assessment can be made, the user should contact this company so we can attempt to obtain additional information from our suppliers. Our responsibility for products sold is subjected to our standard terms and conditions, a copy of which is sent to our customers and is also available on request.

Please read the label carefully and thoroughly before using Metribuzin 480 g/l SC.